ARTICULATA 2004 19 (1): 1–17 TAXONOMIE

Poecilimon martinae n sp. and *P. inflatus* Brunner von Wattenwyl, 1891 (Orthoptera, Tettigonioidea, Phaneropteridae), two bush-cricket species endemic to southwest Anatolia: morphology, bioacoustics and systematics

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Abstract

The polytypic phaneropterid bush-cricket *Poecilimon martinae* n. sp. is described from South West Anatolia with two subspecies. It is closely related to *Poecilimon inflatus*, which occurs in the same region. Morphologically, all three forms are characterised by a pronotum that covers the tegmina completely. The shape of the pronotum and the structure of the tegmina may be the basis for an unusually low-frequent song in *Poecilimon inflatus*. Distinct differences between the three forms are found in the shape of the male cerci (fig. 5–8), the coloration (fig. 1–4) and the acoustic behaviour. The male calling song of both species is composed of two syllable types, but the time pattern for their presentation is quite different (fig. 25–28). Also the acoustical female response behaviour seems to be species specific (fig. 31–33).

Zusammenfassung

Aus Südwestanatolien wird die polytypische Art *Poecilimon martinae* mit zwei Unterarten neu beschrieben. Sie ist nahe verwandt mit *Poecilimon inflatus*, der im gleichen Gebiet vorkommt. Morphologisch sind alle drei Formen durch ein besonders geformtes Pronotum gekennzeichnet, das die Tegmina vollkommen überdeckt. Diese ungewöhnliche Pronotumform und die Struktur der Tegmina sind vermutlich dafür verantwortlich, dass *Poecilimon inflatus* einen für seine Größe ungewöhnlich tieffrequenten Gesang besitzt. Die drei Formen unterscheiden sich deutlich in der Form der Cerci der Männchen (Fig. 5–8), in der Färbung (Fig. 1–4) und im akustischen Verhalten. *P. martinae* und *P. inflatus* besitzen beide einen Gesang, der aus zwei verschiedenen Silbentypen aufgebaut ist. Das Zeitmuster, in dem diese Silben vorgetragen werden, ist jedoch ganz unterschiedlich (Fig. 25–28). Auch das akustische Antwortverhalten der Weibchen ist anscheinend artspezifisch verschieden (Fig. 31–33).

Introduction

Species of the genus *Poecilimon* are found in large parts of southeast Europe, Anatolia and the Caucasus region. However, most species of this huge genus (about 140 described and currently recognised forms; OTTE et al. 2004) have quite small distribution ranges, only very few are found in large parts of the genus range (e.g., *P. schmidti*). The most important reason for the high species number as well as the small ranges is certainly the low mobility of the animals. Like all members of the subfamily Barbitistinae they possess strongly reduced forewings

sufficient only for sound production but not for flight. The females of some species have even lost the ability to produce acoustical signals (HELLER 1984). Most species can be best identified on the basis of the male genitalia. Even closely related, often allopatric forms differ mostly in the structure of male cerci. In some cases, however, these differences can be quite small, and only behavioural studies can elucidate the status of the populations in question (e.g., *P. mariannae* WILLEMSE & HELLER 1992, *P. paros* HELLER & REINHOLD 1992). In this paper a new species is described which differs clearly in morphology from its sister species, but the differences in song are even more pronounced.

Material and methods

Examined specimens are deposited in the following collection and museums: CH Collectio Heller; NMW, Naturhistorisches Museum Wien, Vienna, Austria; ZMHB Museum für Naturkunde der Humbolt-Universität, Berlin, Germany.

All cercus photographs (left cercus oriented horizontally) and measurements were taken using a stereomicroscope Olympus SR-III. Measurements were taken as indicated in HARZ (1969; fig. 13, 16, 17). The distribution map was produced using the program Versamap. The stridulatory files were studied using a scanning electron microscope DSM 960, Fa. Zeiss.

At http://www.dorsa.de digitised sound records will be available under the sound file names given below. Sound data and localities will be also available at the taxonomic database Systax (www.biologie.uni-ulm.de/systax/index-e.html).

For sound recording in the field a SONY WM3 tape cassette recorder was used with microphone SONY ECM-121 (frequency characteristics unknown), in the laboratory a Racal store 4 D tape recorder with microphones Brüel & Kjaer 4133 and 4135 (frequency response flat up to 40 resp. 70 kHz). The female response songs were recorded by a combination of a bat detector (QMC mini) directed towards the male and a microphone towards the female. After digitising the songs on a PC or an Apple computer, oscillograms (after filtering) and sound analysis were made using a PC and the programs Turbolab, Amadeus (Apple) and CoolEdit. Wing movements were registered by an opto-electronic device (HELVERSEN & ELSNER 1977, modified as in HELLER 1988).

Song terminology: Calling song: song produced by an isolated male. Syllable: the sound produced during one complete movement cycle (opening and closing) of the forewings. Syllable period (reciprocal value: syllable repetition rate): time period from the beginning of one syllable to the beginning of the next. Impulse: a simple, undivided, transient train of sound waves (here: the highly damped sound impulse arising as the impact of one tooth of the stridulatory file).

Results

P. martinae and its sister species *P. inflatus* Brunner von Wattenwyl, 1891 differ clearly from all other species of the genus *Poecilimon* by the characteristic form of pronotum (see below) and the tegmina, which are in most specimens completely covered by the pronotum even in the male (RAMME 1933, BEY-BIENKO 1954). Closely related species are *P. cretensis* Werner, 1903, *P. bilgeri* Karabag, 1953 and *Parapoecilimon antalyaensis* Karabag, 1975, where the tegmina are also nearly completely covered. The general morphology of all three forms (*P. inflatus, P. martinae martinae* and *P. martinae tlos*) is so similar that a single description for all of them is sufficient.

Morphological description of *P. inflatus, P. martinae martinae* and *P. martinae tlos* (see also description of *P. inflatus* in BEY-BIENKO 1954)

Male

Integument very shiny or glossy. Body medium-sized for the genus. Fastigium less than half as wide as pronotum, without or with very week dorsal groove. Antennae dark, but each segment with small bright markings at one or both ends, in larger intervals (about every 5–10 segments) one or several segments completely or nearly completely bright (fig. 1–4). Pronotum more or less cylindrical, sulcus before middle, metazona inflated, slightly widened, posterior edge of metanotal disc strongly convex, sometimes even pointed (fig. 9–14). Large prothoracic spiracles in males and females (fig. 9–11, 15–16). Tegmina completely or nearly completely (some specimens of *P. martinae*) covered by pronotum; with white outer edge, more interior with dark spot (intensity of coloration variable, more intense in *P. martinae*). Stridulatory file with small, relatively regularly spaced teeth (about 80; a single specimen each of *P. inflatus* (81 teeth) and *P. martinae martinae* (85) studied; fig 21–22). In some females several parallel veins with non-functional stridulatory spines could be seen on the upper side of the left tegmen. Hind-femora without ventral spines, with black markings along inner and outer ventral edge (more prominent distally), a dark dorsal midline, and dark lines on inner and outer side of the leg (quite variable from very distinct to nearly missing). Fore- and middle-legs also with black markings along inner and outer ventral edge and a dark dorsal midline. Shape of cerci species/subspecies-specific (fig. 5–8). Subgenital plate short and relatively broad, straight cut off, truncated or slightly emarginate.

Female

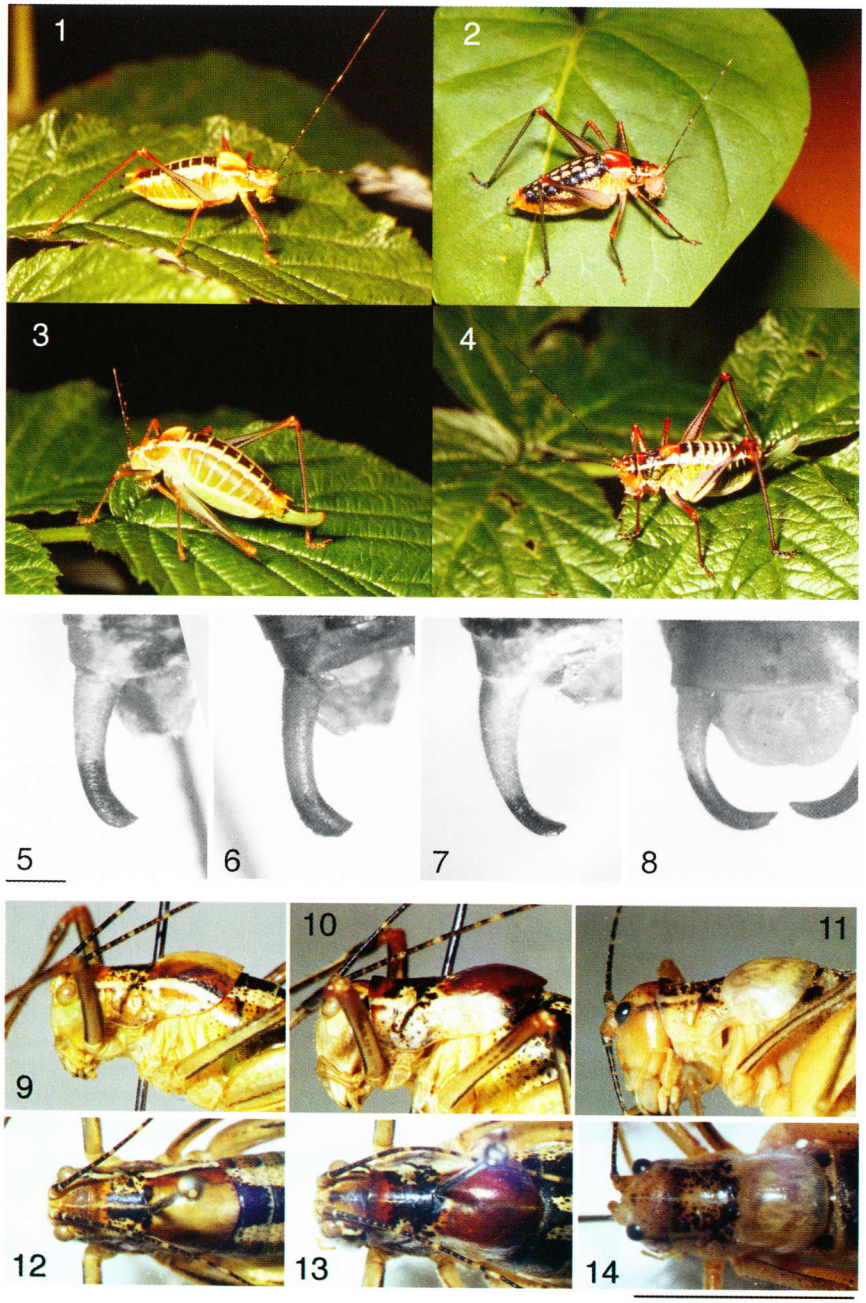
In above mentioned characters as male except for stridulatory file (different in females; see HELLER & HELVERSEN 1986). Coloration species-specific (fig. 1–4).

Legends of Figures (next page):

Fig. 1–4: 1 *Poecilimon inflatus*, male, ex Termessos (?); 2 *Poecilimon martinae,* male, ex Cirali Olimpos; 3 *Poecilimon inflatus*, female, ex Termessos (?); 4 *Poecilimon martinae*, female, ex Termessos. All photographs taken in the laboratory.

Fig. 5–8: Male, cercus. 5 *Poecilimon inflatus*, lectotype (right cercus, mirror-image), 6 *P. inflatus* CH1544, 7 *P. martinae martinae* CH5449, 8 *P. martinae tlos* CH5446. Scale 1 mm.

Fig. 9–14: Male, pronotum. 9–11 lateral view, 12–14 dorsal view. 9, 12 *Poecilimon inflatus* CH 5448, 10, 13 *P. martinae martinae* CH5449, 11, 14 *P. martinae tlos* CH5446. Scale 10 mm.



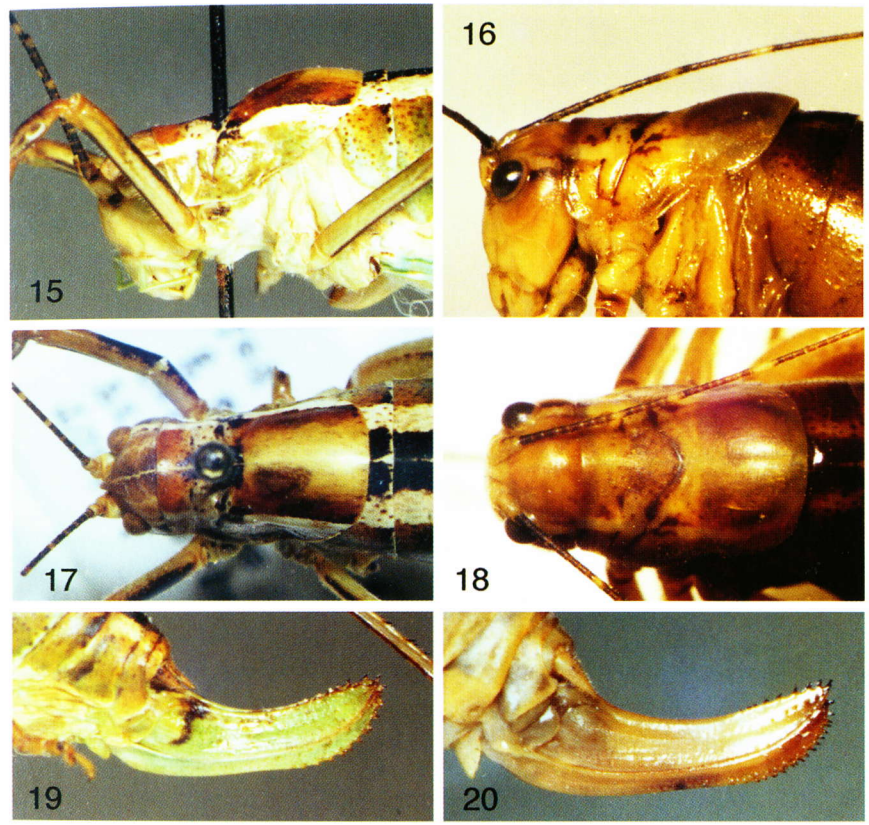


Fig. 15–20 Female, morphological characteristics. 15–16 pronotum, lateral view, 17–18 pronotum, dorsal view, 19–20 ovipositor. 15,17,19 *Poecilimon inflatus* CH1550, 16,18, 20 *P. martinae martinae*.(16, 18 CH5488, 20 CH5452). Scale 10 mm.

Key to species/subspecies:

1 Male cerci at the base or at the end of the first third only little thicker than at thinnest point, only at apex bent inwards (fig. 5–6). Coloration as in fig 1, 3. Ovipositor < 8.7 mm (fig. 19) — *P. inflatus*

Male cerci at the base about two times thicker than at thinnest point, distal half curved inwards (fig. 7–8). Coloration as in fig 2, 4. Ovipositor > 8.7 mm (fig. 20) — 2

2 Male cerci with short, inwards directed apex (fig. 7); — *P. martinae martinae*

Male cerci with elongated, inwards directed apex (fig. 8); — *P. martinae tlos*

Poecilimon inflatus Brunner von Wattenwyl, 1891

BRUNNER VON WATTENWYL 1891: 25, 28 (description); JACOBSON 1905: 330, 357 (description; in Russian); KIRBY 1906: 376 (catalogue; not seen); RAMME 1933: 507 (arrangement), 509–10 (checklist), 539 (description); BEY-BIENKO 1954: 253 (arrangement), 259 (key), 288 (description); KARABAG 1958: 82 (faunistic catalogue); OTTE 1997: 123 (catalogue); NASKRECKI & OTTE 1999: (catalogue); SEVGILI 2001: 20, 23 (distribution); YALIM & CIPLAK 2002: 270 (distribution).

Type locality: Turkey, province Mugla, Fethiye (as Makri in the labels and in BRUNNER VON WATTENWYL 1891), 36° 37' N, 29° 06' E.

Type depository: NMW, 1 male, 1 female, formerly syntypes, now lectotype and paralectotype, examined. The male is designated as lectotype to avoid taxonomic problems if the female would be demonstrated to belong to another form of the group. The female thus becomes a paralectotype.

Material examined
9 MM, 2 FF (CH0272, CH1541-50, Turkey: Antalya, Termessos, 36° 58' N, 30° 30' E, 8 June 1985 (or Turkey: Antalya, Xanthos, 36° 23' N, 29° 17' E, 7 June 1985); leg. H. Wolf; see below: Distribution); 3 MM (CH5409-11, Turkey: Antalya, Xanthos (ca. 130 km sw Antalya), 36° 23' N, 29° 17' E, 5 June 2000, leg. K.-G. Heller), 1 M, 1 F (CH5447-8, Turkey: Mugla, Tlos (ca. 20 km east of Fethiye), 36° 34' N, 29° 23' E, 6 June 2000, leg. K.-G. Heller); 1 M, 1 F (NMW; lectotype and paralectotype; Turkey: Mugla, Fethiye (Makri), leg. Kruper (spelling with "u", not "ü", but probably referring to the collector Krüper; see below)); 1 M (ZMHB: Turkey, Mugla, Kale ("Gjöl Banhi"), 1882, leg. v. Luschan).

Previous records: TURKEY: Aydin; Bölüntü KARABAG 1958; Mugla: Fethiye (as Makri) BRUNNER VON WATTENWYL 1891 (RAMME 1933, BEY-BIENKO 1954, KARABAG 1958), KARABAG 1958; Gjöl Banhi RAMME 1933. The records of *P. inflatus* by SEVGILI (2001) and YALIM & CIPLAK (2002) refer to *P.martinae*.

The record from Gjöl Banhi in RAMME (1933) (transliterated to Gölbasi in KARABAG 1958) refers to an animal collected by v. Luschan 1882. The name of the locality (Gjöl Banhi) sounds and looks quite similar to that of the type locality of *Poecilimon luschani* Ramme, 1933: Göllbakti. This species was also collected by v. Luschan in 1882, but the locality could never be localised precisely (BEY-BIENKO 1954, KARABAG 1958). It can be assumed that both localities are identical and refer to a place also called Gjölbaschi, where v. Luschan collected between 28th April and 29th May 1882 (MILL 1983), situated near the town of Kale. MILL (1983) listed all places and their geographic coordinates where v. Luschan collected plants in 1882 based on the books and itineraries of v. Luschan, and there are no similarly written localities.

Interestingly, RAMME (1930) described the species *Eupholidoptera krueperi* according to specimens also collected by v. Luschan and Krüper at exactly the same two localities (Gjöl Banhi and Makri) known for *P. inflatus* at that time. For *E. krueperi* KARABAG (1958) and probably based on Karabag also SALMAN (1983) assumed the type locality Gjöl Banhi (as Gölbashi) erroneously in the province of Bursa.

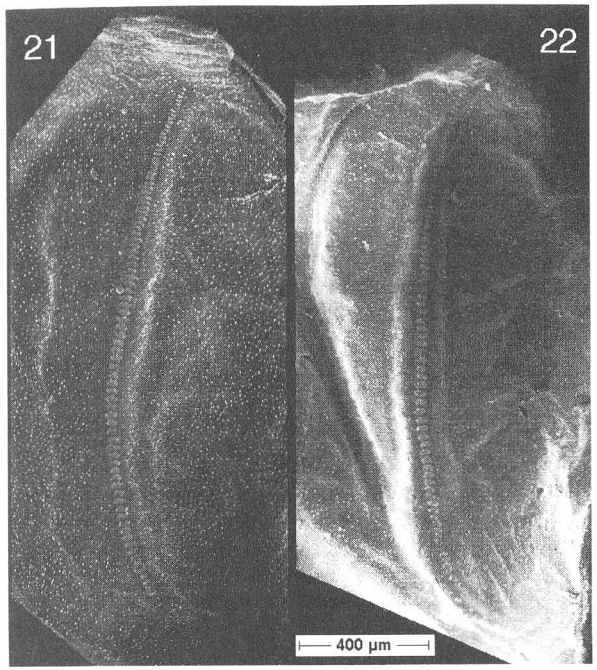


Fig. 21–22: Stridulatory file on the underside of left tegmen. 21 *P. inflatus* CH0272, 22 *P. martinae martinae* CH 5450.

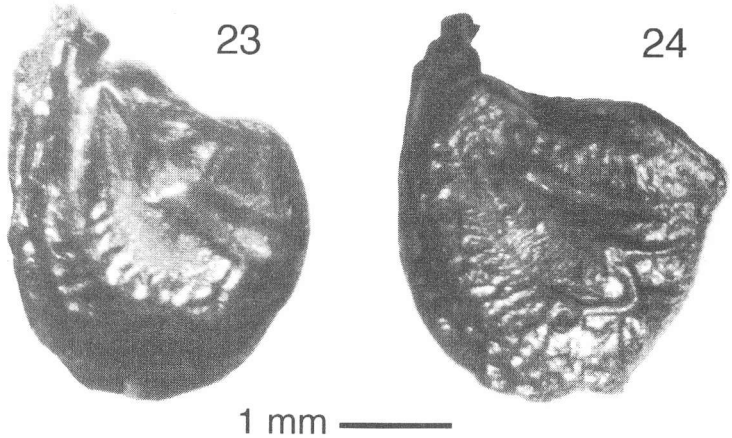


Fig. 23–24: Male, left tegmen, dorsal view. 23 *P. inflatus* CH0272, 24 *P. martinae martinae* CH 5450.

Diagnosis and additional description

Differs from the two other forms by the characteristic shape of the male cerci (fig. 5–6). The small teeth (only one very small tooth in the lectotype) at the outer upper edge of the cerci are sometimes much smaller (e.g., in CH5409) than in fig. 6 and hardly to recognise. The specimen from Kale differs from the others by a more slender cercus shape (compare pl. 9, fig. 34 in RAMME, which is probably based on this specimen). From the coloration, it belongs clearly to *P. inflatus*.

The tegmina were in all specimens completely covered by the pronotum. When viewed from above (after removal or in ethanol preserved specimens), the left tegmen shows a deep round depression in the centre of the quite flat surface of the anterior two thirds (fig. 23). The distal third of the tegmina is steeply bent downwards.

Animals of *P. inflatus* are alive easily recognisable by their coloration which is distinctly brighter and more rusty brown than in *P. martinae* (see figs. 1, 3): pro- and metazona of pronotum show rusty brown to yellow colours (in the metazona mainly the edges rusty brown, the centre yellow), the mesozona bears black markings. In the abdomen, a broad central black band is flanked by bright yellow bands. Female in coloration as male; upper valve of the ovipositor near the base light brown or green, this area distally bordered by a dark black marking (fig. 19). In ethanol preserved specimens this black marking is weak or missing.

Song

The male calling song consists of long syllable sequences of indefinite duration, lasting many seconds or minutes. Within the sequence, two types of isolated syllables change more or less regularly. One type is represented by longer, two-part syllables (l-syllables), the other by shorter, undivided syllables (s-syllables). A long series of l-syllables (mostly about 10–20; range of mean values from 9 recordings from 6 males: 6–22) is followed by a few s-syllables (mostly about 2–4; range of mean values from 11 recordings from 6 males: 2–4) (fig. 25, 27), then another series of l-syllables follows and so on. The intervals between l-syllables range typically from 0.6–2 s (range of mean values from 18 recordings from 8 males: 0.6–2.6; n per recording 5–84; T = > 22.5–27 °C). Even at the same temperature two males can differ in this character by a factor of 2 or more. The intervals between s-syllables are mostly, but not always, larger than between l-syllables (range of mean values from 11 recordings from 6 males: 0.8–2.2; n per recording 2–27). The intervals between s- to l- and l- to s-syllables are in the same range. The basis for the different syllable structure can be found in the stridulatory movements (fig. 29–30). The s-syllables (duration about 12–25 ms) are produced by a more or less continuous closing movement of the tegmina. In the l-syllables (duration about 30 ms) the amplitude of the movement is smaller. More important is, however, that the speed of the movement changes during closing. It becomes much slower after the first half, resulting in a short silent interval before the loud final part. Since the stridulatory file consists of regularly spaced teeth (fig. 21), the differences in movement speed must be based on neuromuscular activity.

The female responds acoustically to the male song. The single female that was recorded responded to s- and l-syllables. As found in other *Poecilimon* species (HELLER & HELVERSEN 1986), the response delay was very short, in the range of 25–30 ms at 24.5 °C (fig. 31). The response consisted of a series of 10-15 impulses (duration 100–300 ms), the first one being the loudest (time pattern similar to *P. laevissimus*; HELLER & HELVERSEN 1986). Quite often a single impulse could be heard from the female some time before the typical answer (fig. 31, left part). Since the stridulatory movement is not known, it is impossible to say if this impulse was the result of a movement to bring the tegmina in the correct position for fast responding.

This *P. inflatus* female was tested also with a singing male of *P. martinae*. It did not respond to the song of that male in a co-ordinated manner. It replied very poorly. Two short answers occurred after about 1.5 s, similarly to the single impulses mentioned above. One typical answer referred to the song of an unidentified male in the background, not to the *P. martinae* male. After replacing the *P. martinae* male with a conspecific male the response rate was as high as before and the responses were timed as before.

The carrier frequencies of the male song were restricted to the high audible range, between 10 and 20 kHz (5 males analysed up to at least 40 kHz; fig. 34). Such relatively low frequencies are very unusual for a *Poecilimon* species with quite small tegmina. Similar frequencies have been found only in much larger species with larger tegmina (HELLER 1988). Possibly the nearly closed chamber beneath the pronotum together with the modified tegmina acts as a Helmholtz resonator as described by MORRIS & MASON (1995) for a South American agraeciine bush-cricket. The spectrum of the female song of *P. inflatus* is not known.

Sound files: POIN0001, 4 (CH5409), POIN0002 (CH5410), POIN0003 (CH5411), POIN0005-8 (CH5447), POIN8501-8 (CH0272), POIN8509-10 (CH1541), POIN8511 (CH1542), POIN8512 (CH1543), POIN8513-15 (CH1544), POIN8517-19 (CH1541).

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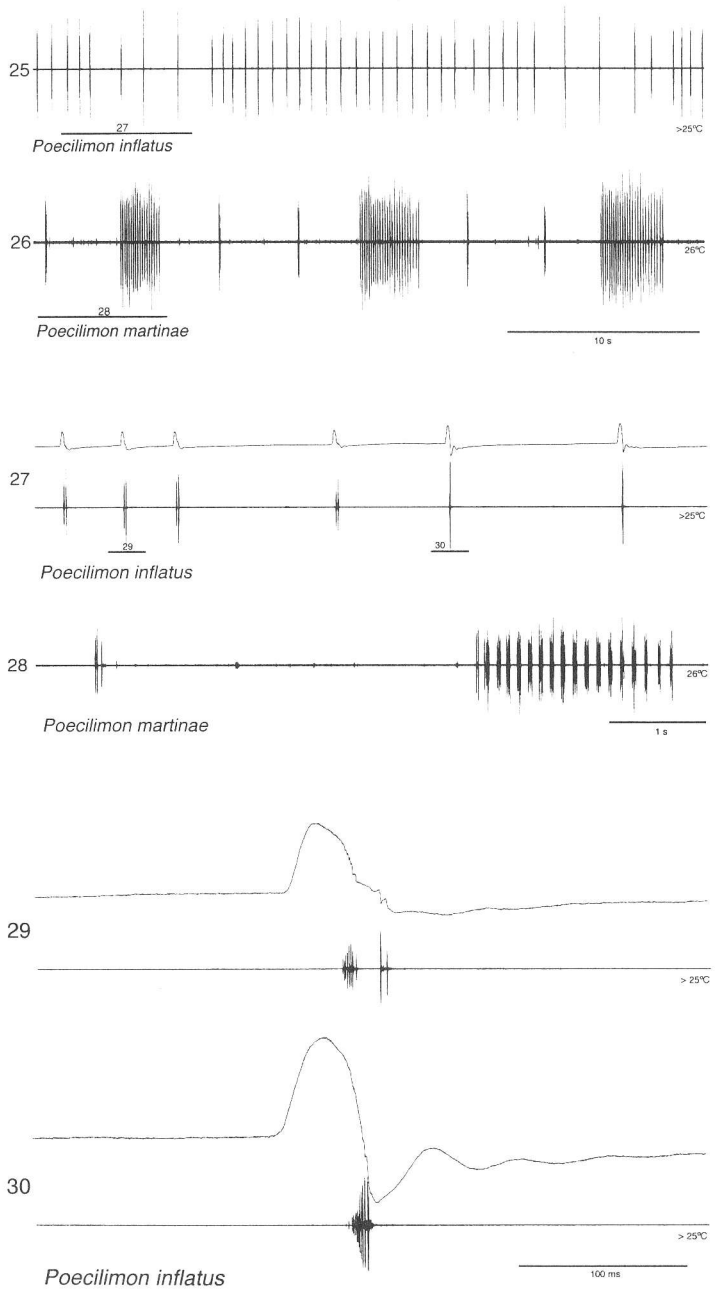
Fig. 25–26: Oscillograms of male calling song of *Poecilimon inflatus* (CH0272) and *P. martinae* (CH5449). Horizontal bars mark the position of the enlarged sections shown in Fig. 27–28.

Fig. 27–28: Oscillograms of male calling song of *Poecilimon inflatus* and *P. martinae*. Horizontal bars mark the position of the enlarged sections shown in Fig. 29–30. Oscillograms of corresponding stridulatory movement are presented above the song pattern of *P. inflatus* (see fig. 29–30).

Fig. 29–30: Oscillograms of stridulatory movements and song of *Poecilimon inflatus* (synchronous registration of left tegmen movement (upward deflection represents opening, downward closing) and sound).



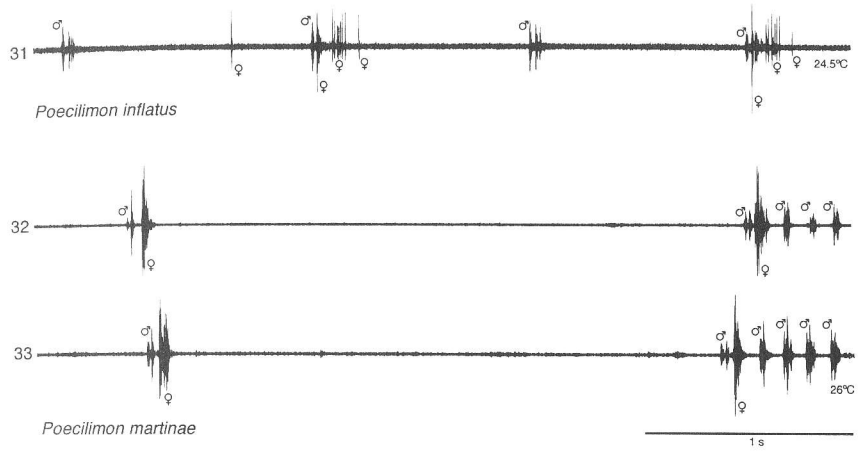


Fig. 31–33: Oscillograms of male calling song and female response of *Poecilimon inflatus* (female CH5447) and *P. martinae* (female CH5454).

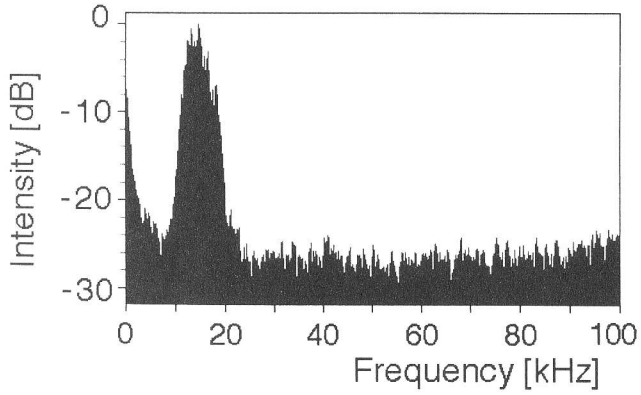


Fig. 34: Frequency spectrum of male calling song of *Poecilimon inflatus* (CH1541).

Measurements (length in mm)
Lectotype and paralectotype (own measurements / according to BRUNNER VON WATTENWYL 1891); male: body – / 18, pronotum 7 / 7, hind femur 17 / 16; female: body – / 20, pronotum 8 (damaged) / 8, hind femur 17.5 / 18, ovipositor 8.5 / 10,5.

Other specimens: male: body ca. 18–21 (n = 13), pronotum 6.6–7.3, hind femur 15–17; female: body ca. 22,5 (n = 2); pronotum 6–7.3, hind femur 16–17.5, ovipositor 7.5–8.5.

Distribution
Confirmed findings of *Poecilimon inflatus* are situated in south west Anatolia, around Fethiye (Fethiye, Tlos, Xanthos, Kale; fig. 35). The localities Bölüntü and Termessos should be checked again for the presence of the species with respect to the alternative or additional presence of *P. martinae*. Although all my specimens of *P. inflatus* from 1985 bear labels with the locality Termessos and also the recordings notes for these specimens indicate only this place, I now assume that they may have been mistaken. In my collection there is a series of *Poecilimon bilgeri* specimens from Xanthos from about the same date and the same collector. Possibly the localities for both series (all specimens brought alive to Germany) were exchanged. *P. bilgeri* occurs at both places (own observations).

Poecilimon martinae n. sp.

P. martinae martinae n. ssp.

Type locality: Turkey: Antalya, near Çirali Olimpos (ca. 60 km ssw Antalya), 36° 24' N, 30° 28' E, 28 May 2000, leg. K.-G. Heller.

Type depository: CH5450 holotype male (in ethanol, left tegmen separate), CH5452 allotype female, CH5407-8, 5449, 5451, 5453-54, 5487-8 paratypes (all in ethanol except CH5449).

Material examined
2 FF (CH1551-52, Turkey: Antalya, Termessos, 36° 58' N, 30° 30' E, 8 June 1985, leg. H. Wolf):1 M, 1 F (CH5487-8; Turkey: Antalya, 35 km (ss)w Antalya, 36° 36' N, 30° 32' E, 29 May 1999, leg. R. Zhantiev); 3 MM, 3 FF (CH5449-54, Turkey: Antalya, near Çirali Olimpos (ca. 60 km ssw Antalya), elev. 10 m, 36° 24' N, 30° 28' E, 28 May 2000, leg. K.-G. Heller); 1 M, 1 F (CH5407-8, Turkey: Antalya, 10 km east of Kumluca (ca. 70 km ssw Antalya), elev. 300 m, 36° 23' N, 30° 22' E, 4 June 2000, leg. K.-G. Heller).

The specimens of *P. inflatus* mentioned by YALIM & CIPLAK (2002) from Termessos belong to *P. martinae* (determined in cerci photographs sent by B. Ciplak) as well as that from Antalya (Kemer, Kesme Bogazi, Adrasan, Tahtalidag) mentioned by SEVGILI (2001) (determined by Sevgili on the basis of a previous version of this paper).

Diagnosis and additional description
Differs from the other two forms by the characteristic shape of the cerci (fig. 7).

In some specimens the tegmina were completely covered by the pronotum; in ethanol preserved specimens, however, parts of them were often visible. In general, they are more easy to see than in *P. inflatus*. When viewed from above (after removal or in ethanol preserved specimens), the left tegmen does not show a deep round depression as in *P. inflatus*. Also the venation pattern is different from *P. inflatus* (fig. 24), and the distal third of the tegmina is not steeply bent downwards.

Alive easily recognisable by its coloration which is distinctly darker and more reddish brown than in *P. inflatus* (see figs. 2, 4); pro- and metazona of pronotum show mainly red colours (in the metazona a thin yellow midline), the mesozona bears black markings. In the abdomen, a thin central black line is flanked by bright yellow bands, these again flanked by black bands. Female similar to male; upper valve of the ovipositor near the base light brown or green, this area distally bordered by a dark black marking. In ethanol preserved specimens this black marking is weak or missing (condition in life?). Some ethanol preserved specimens do not have any black markings on the abdomen (colour in life completely green?; fig. 20).

Song
As in *P. inflatus*, the male calling song consists of long syllable sequences of indefinite duration, lasting many seconds or minutes. Within the sequence, two types of syllables change more or less regularly. One type is represented by longer, multi-part syllables or possibly syllable groups (compare *P. cretensis* Werner, 1903 (fig. 37 D in HELLER 1988); called l-syllables) and the other by shorter, two to three-part syllables (s-syllables). As in *P. inflatus*, a long series of l-syllables (mostly about 10–50; range of mean values (n = 3–11) from 9 recordings from 4 males: 10–53) is followed by a few s-syllables (mostly about 2–4; fig. 26, 28). In contrast to *P. inflatus*, the l-syllables are produced quite rapidly at a syllable repetition rate of 6–8 Hz (syllable periods 120–150 ms at 25–26 °C). The intervals between the s-syllables are with 3 to 8 s (range of means from 4 recordings) larger than in *P. inflatus*. The last s-syllable is followed directly by the sequence of l-syllables with an interval typical for l-syllables (fig. 28). Due to the limited quality of the recordings details of the syllable structure cannot be given. Two males singing simultaneously were observed to alternate with their l-syllable-series. In the time pattern the calling song is quite similar to that of *P. cretensis* (HELLER 1988).

The female responds acoustically to the male song. The two females that were recorded responded preferentially to s-syllables. They replied to isolated s-syllables as well as to the s-syllables at the beginning of the l-syllable series. In addition they also responded one or two times during a l-syllable series, but rarely. The response delay of 50–90 ms (fig. 32–33) (female CH5454: 62 ± 9 ms, n = 39; T = 26 °C) was short, but nearly a factor two larger than in *P. inflatus*. The response consisted of one sound event whose structure could not be resolved.

The spectra of the male and female song are not known. From the morphological similarity of the pronotum, it could be expected that they resemble that of *P. inflatus* at least in the male. The less specialised tegmina, however, may indicate a

more usual, more high-frequent song. Using a heterodyning bat-detector, no unusual narrow band was detected.

Sound files: POWW0001-2 (CH5450), POWW0003-4, 6, 17 (CH5451), POWW0005 (CH5449), POWW0007-11 (CH5454), POWW0012-16 (CH5408).

Etymology
Named according to our daughter Martina who insisted having heard sounds coming out of the *Laurus* bush where we later discovered most of the specimens. High-frequent songs can be quite loud to a child, but not necessarily for adults. Noun in the genitive case.

Habitat
Mediterranean maquis vegetation. Near Kumluca we found the species together with *Poecilimon birandi*, from Termessos several other *Poecilimon* species are known (*P. birandi, P. bilgeri, P. ledereri, P. tauricola, Parapoecilimon antalyaensis* according to YALIM & CIPLAK 2002). The occurrence of *P. inflatus* in Termessos has to be confirmed.

Distribution
Known only from a narrow, North to South oriented area from Termessos in the North to Kumluca in the South (Turkey, province Antalya; see fig. 35).

Measurements (length in mm)
Holotype male: body ca. 28, pronotum 8, hind femur 17.

Other specimens studied here: male: body ca. 20–28 (n=4), pronotum 6.5–8.0, hind femur 15.5–17.5; female: body ca. 21–30 (n=7); pronotum 7.0–8.3, hind femur 18–20.5, ovipositor 9–10.5.

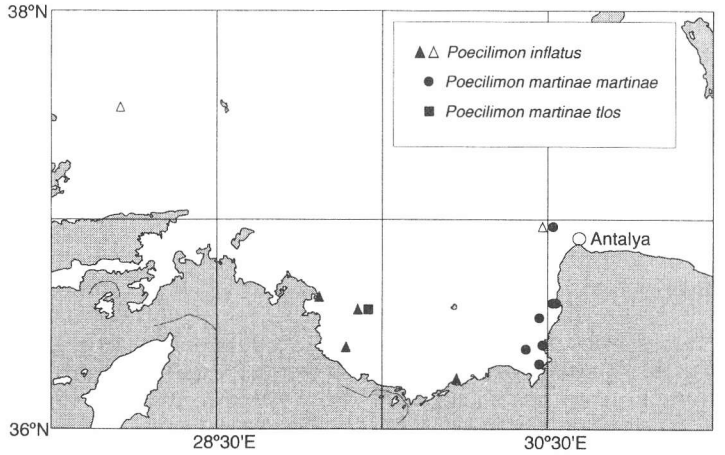


Fig. 35: Distribution of *Poecilimon inflatus* and *P. martinae* (empty symbols mark localities that should be confirmed (see text)).

P. martinae tlos n. ssp.

Type locality: Turkey: Mugla, Tlos (ca. 20 km east of Fethiye), 36° 34' N, 29° 23' E.

Type depository: CH5446, holotype male.

Material examined
1 M (CH5446; labelled: Turkey: Mugla, Tlos (ca. 20 km ö Fethiye), 36° 34' N, 29° 23' E, 6 June 2000, leg. K.-G. Heller).

Diagnosis
Differs from the other two forms by the characteristic shape of the cerci (fig. 8). Alive easily recognisable by its coloration which is distinctly darker and more reddish brown than in *P. inflatus* (see figs. 11,14 ; ethanol preserved specimen).

Song
Unknown.

Etymology
Named according to the ancient city of Tlos: noun in apposition.

Distribution
Known only from Tlos in Turkey.

Measurements (in mm)
Holotype male: body ca. 23, pronotum 7.3, hind femur 17.5.

Discussion

The single male known from this form is in general morphology and in coloration very similar to the nominate subspecies. However, the cerci are so different that at least the status of a separate subspecies seems to be necessary. Studies of the calling song have to clarify its status. It was found in Tlos syntopically with *P. inflatus*.

Biogeography and evolution
Some species morphologically near to *P. inflatus* are found in and around south western Anatolia (in addition to *P. inflatus* and *P. martinae* also *P. cretensis* (Crete), *P. bilgeri* and *Parapoecilimon antalyaensis* (both southwestern Anatolia). These species can be grouped under the name *P. inflatus* group and will be treated in a separate revision (Heller in prep). Most species occur probably allopatrically or parapatrically in small parts of the group's range, only *P. bilgeri* occurs together with all other Anatolian species.

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